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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/082,220	02/26/2002	Seong Yun Jeong	0630-1427P	2624

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BIRCH STEWART KOLASCH & BIRCH
PO BOX 747
FALLS CHURCH, VA 22040-0747

EXAMINER

AGUSTIN, PETER VINCENT

ART UNIT	PAPER NUMBER
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2652

DATE MAILED: 06/14/2004

8

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/082,220

Applicant(s)

JEONG, SEONG YUN

Examiner

Peter Vincent Agustin

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 8 is/are rejected.
- 7) ☒ Claim(s) 2,3 and 5-14 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 February 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. ____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|-----------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Drawings

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description:

Element 200, cited on page 1, line 14

Element 1, cited on page 7, line 17

Element 3, cited on page 7, line 18

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

3. For clarity, Figure 7 should be labeled as --440--.

Specification

4. The disclosure is objected to because of the following informalities:

Page 1, line 7: "a optical" should be --an optical--.

Page 2, line 2: "radial shift" should be --radial shift, respectively--.

Page 6, line 17: "an light" should be --a light--.

Page 9, line 1: "difference" should be --different--.

Appropriate correction is required.

5. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: regarding claim 8, antecedent basis for the claimed “focus controller” is not provided.

Claim Objections

6. Claims 2, 3 & 5-14 objected to because of the following informalities:

Claim 2, line 2: “is evenly” should be --are evenly--.

Claim 5, line 4: “light amount of a region” should be --light amount signal of a region--.

Claim 8, line 5: “determine” should be --determining--.

Claim 9, line 3: “a left” should be --left--.

Claim 9, line 4: “a right” should be --right--.

Claim 12, line 3: “received a” should be --received by a--.

Claims 2 & 12: “A1, A2, B1, B2, C1, C2, D1 and D2” should be --A1, A2, B2, B1, C1, C2, D2 and D1--, as shown in figure 7.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

7. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

8. Claims 1-4 & 8 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described

in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The specification does not disclose how to make and use “a focus controller” recited on claim 1, line 5.

Claim 8, line 5 recites a step of determining the constant to minimize the influence of a radial shift, but the specification does not disclose how this constant is determined.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 1, 2 & 4 rejected under 35 U.S.C. 103(a) as being unpatentable over Ishibashi (US 5,523,989) in view of Nagahara et al. (hereafter Nagahara) (US 5,136,567).

In regard to claim 1, Ishibashi discloses an optical pickup apparatus (figure 1) of an information-recording medium (1) comprising: a light source (column 3, line 39); an optical system (2 & 10) for condensing a light emitted from said light source; a focus controller (column 4, lines 55-62) for controlling said optical system to form a light spot on an information-recording medium; a photo-detecting device (6a, 6b, 5a & 5b) for detecting a light beam reflected from the information-recording medium; a processing device (20) for processing signals of the plurality of light beam detected by said photo-detecting device to supply a tracking error signal (TE) and a tilt information signal (T_{rad}); a tracking controller (column 4, lines 32-35) for controlling said optical system according to the tracking error signal to make the light spot

follow an information track formed on the information-recording medium; and a tilt controller (figure 6, elements 205 & 206) for compensating the tilt of the information-recording medium according to the tilt information signal. However, Ishibashi does not disclose that the photo-detecting device is divided into pluralities of regions which are defined by a vertical, horizontal and diagonal lines centering on the central position of the photo-detecting device and wherein the vertical line is parallel to a track of the information medium.

Nagahara discloses a photo-detecting device (figure 1) divided into pluralities of regions (A-H) which are defined by a vertical, horizontal and diagonal lines centering on the central position of the photo-detecting device and wherein the vertical line is parallel to a track of the information medium. It would have been obvious to one of ordinary skill in the art at the time of invention by the applicant to have used the photo-detecting device of Nagahara for the optical pickup of Ishibashi, the motivation being to accurately detect the tracking error signal without the influence of a dc offset (see column 1, lines 13-50).

Furthermore, in regard to claim 2, Nagahara and hence the obvious combination noted above, discloses that the photo-detecting device has eight regions that is evenly divided in size, and wherein signals detected in said regions are designated by A1, A2, B2, B1, C1, C2, D2 and D1 (B, A, H, G, F, E, D and C) starting from seventh octant of the eight regions.

Furthermore, in regard to claim 4, Ishibashi discloses a hologram means (figure 1, element 4) installed on an optical path of the light beam reflected from the information-recording medium.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Ohsato (US 5,515,348) discloses an optical pickup device having tilt compensation and focusing error compensation.

Yanagawa (US 6,363,038) discloses an optical pickup device for minimizing an undesirable astigmatism using a tilt position adjusting mechanism.

Nagaoka et al. (US 2002/0080692) discloses an optical disk apparatus and method for calculation of the amount of lens shift. Figures 2a & 2b show graphs of relations between lens shift/disk tilt and tracking error signals.

Sugiura et al. (JP 62052735 A) discloses an optical pickup apparatus having a photo-detecting device divided into six regions and a tilt controller for compensating the tilt.

Ishika (JP 01007331 A) discloses a focus controller for controlling an optical system to form a light spot on an information-recording medium.

Allowable Subject Matter

12. Claims 5-7 & 9-14 would be allowable if base claims 5, 9 & 12 are rewritten to overcome the objections above.

13. The following is a statement of reasons for the indication of allowable subject matter:

In regard to independent claim 5, no prior art of record alone or in combination discloses or suggests a tilt detecting method of an information-recording medium comprising the steps of: detecting a light amount signal of **a region having a large change in a light amount** and a light amount of **a region having a small change in a light amount** according to a tilt amount of the

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information-recording medium, by means of a photo-detecting device; **calculating a push-pull value of each region; and removing an influence of a radial shift by using the two push-pull values** and obtaining a tilt information; wherein the photo-detecting device is divided into pluralities of regions which are defined by a vertical, horizontal and diagonal lines centering on the central position of the photo-detecting device and wherein the vertical line is parallel to a track of the information medium.

In regard to independent claim 9, no prior art of record alone or in combination discloses or suggests a tilt detecting method of an information-recording medium comprising the steps of: dividing a light reflected from an information-recording medium to a left and a right regions, **dividing the left and the right regions to a region having a large change in a light amount and a region having a small change in a light amount; obtaining a difference between a sum of the left light amount of the region and the sum of the right light amount of the region having the large change in a light amount, and obtaining a first push-pull value; obtaining a difference between a sum of the left light amount of the region and the sum of the right light amount of the region having the small change in a light amount, and obtaining a second push-pull value; multiplying the second push-pull value by a constant, subtracting the result value from the first push-pull value, and obtaining a push-pull value depending only on a tilt amount; and subtracting the push-pull value from a tracking error value and detecting a tilt value;** wherein the photo-detecting device is divided into pluralities of regions which are defined by a vertical, horizontal and diagonal lines centering on the central position of the photo-detecting device and wherein the vertical line is parallel to a track of the information medium.

In regard to independent claim 12, no prior art of record alone or in combination discloses or suggests a tilt detecting method of an information-recording medium comprising the steps of: detecting pluralities of light signals received by a photo-detecting device arranged in a light receiving path; wherein the photo-detecting device is divided into eight regions which are defined by a vertical, horizontal and diagonal lines centering on the central position of the photo-detecting device and wherein the vertical line is parallel to a track of a information medium; and wherein signals detected in said regions are designated by A1, A2, B2, B1, C1, C2, D2 and D1 starting from seventh octant of the eight regions; **calculating push-pull signals P1 and P2; wherein $P1=(A1+D1)-(B1+C1)$ and $P2=(A2+D2)-(B2+C2)$; and outputting a tilt information signal T according to a following equation: $T = P1 - k \cdot P2$ wherein k is a constant to minimize the influence of a radial shift.**

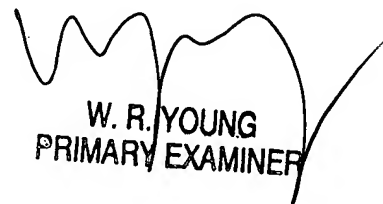
Claims 6, 7, 10, 11, 13 & 14 are allowable because they are dependent upon allowable base claims.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Peter Vincent Agustin whose telephone number is (703) 305-8980. The examiner can normally be reached on Monday thru Friday 9:00AM - 5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hoa Nguyen can be reached on (703) 305-9687. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

PVA
05/18/2004


W. R. YOUNG
PRIMARY EXAMINER